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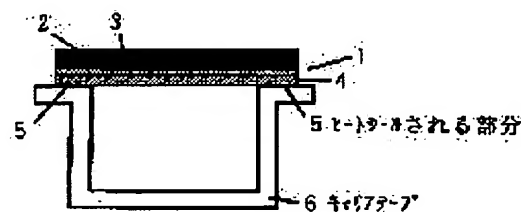
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## (54) COVER TAPE FOR WRAPPING CHIP-TYPE ELECTRONIC PART

(57)Abstract:

**PURPOSE:** To provide a cover tape for wrapping a chip-type electronic part, in which static-electricity measures are taken, the dependence of peel-off intensity on sealing conditions and a change with time are minimized, and sealing performance is stable.

**CONSTITUTION:** In a cover tape 1, an external layer is a biaxially-oriented polyester film 2, an intermediate layer 3 is a polyethylene film, and a bonding layer 4 is comprised of ethylene vinyl acetate resin and polymeric polyethylene uniformly dispersed in the ethylene vinyl acetate resin. The surface of the bonding layer is coated with a cationic surface active agent comprised of trimethyl chloride alkylammonium as a main component.



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CLAIMS

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[Claim(s)]

[Claim 1] It is the covering tape which can carry out the heat seal of the receipt pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. This covering tape An outer layer is biaxial-stretching polyester film, and the middle class is a polyethylene film. A glue line makes ethylene vinyl acetate system resin distribute the amount polyethylene of giant molecules to homogeneity. Further to a glue line side The covering tape for a chip mold electronic-parts package characterized by carrying out coating of the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component, and changing.

[Claim 2] The covering tape for a chip mold electronic-parts package according to claim 1 whose particle size of the amount polyethylene of giant molecules is 0.5-200micro.

[Claim 3] The covering tape for a chip mold electronic-parts package according to claim 1 or 2 whose addition of the amount polyethylene of giant molecules is 0.01 - 50 weight section to the ethylene vinyl acetate system resin 100 weight section of a glue line.

[Claim 4] The covering tape for a chip mold electronic-parts package according to claim 1, 2, or 3 whose molecular weight of the amount polyethylene of giant molecules is 1 million-6 million.

[Claim 5] The covering tape for a chip mold electronic-parts package according to claim 1, 2, 3, or 4 whose carbon numbers of the alkyl group of chlorination trimethyl alkylammonium are 10-20.

[Claim 6] The covering tape for a chip mold electronic-parts package according to claim 1, 2, 3, 4, or 5 whose surface-electrical-resistance values of a glue line the addition of the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component is 0.001 - 10 weight section to the ethylene vinyl acetate system resin 100 weight section of a glue line, and are below 1013ohms / \*\*.

[Claim 7] The covering tape for a chip mold electronic-parts package according to claim 1, 2, 3, 4, 5, or 6 whose visible-ray transmission of a covering tape is 75% or more

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention protects chip mold electronic parts from contamination, on the occasion of storage of chip mold electronic parts, transportation, and wearing, since it mounts in an electronic-circuitry substrate, it is aligned, and it relates to the covering tape by which a heat seal may be carried out to the carrier tape made from plastics which formed the receipt pocket among the package objects which have the function which can be taken out.

[0002]

[Description of the Prior Art] In recent years, chip mold electronic parts for surface mounts, such as transistors including IC, diode, a capacitor, and a piezoelectric-device register, are packed and supplied to the package object which consists of a covering tape which can carry out the heat seal of the pocket which can be contained, and by which embossing shaping was carried out to the carrier tape made from plastics formed continuously, and a carrier tape according to the configuration of electronic parts. After the electronic parts of contents exfoliate the covering tape of a package object, they are taken out automatically and the surface mount is carried out to the electronic-circuitry substrate. Although the reinforcement at the time of a covering tape exfoliating from a carrier tape was called PIRUOFU reinforcement, when this reinforcement was too low, at the time of package object migration, the covering tape separated and there was a problem that the electronic parts which are contents were omitted. On the contrary, when too strong, the phenomenon which jumps out of a receipt pocket just before a carrier tape vibrates and being equipped with electronic parts, in case a covering tape is exfoliated, i.e., a jumping trouble, was caused. Moreover, while chip-ization of highly efficient [ more ] and miniaturized electronic parts progresses with the large improvement in a surface mount technology in recent years Electronic parts by vibration at the time of package object migration A carrier tape embossing internal surface, Or static electricity which contacts the inside front face of a covering tape and is generated by friction in that case, And the static electricity failure that electronic parts caused destruction and degradation by the spark of static electricity which generates a covering tape in case it exfoliates from a carrier tape was also generated, and the electrostatic measures to package objects, such as a carrier tape and a covering tape, were taken the problem of the utmost importance. Conventionally, about electrostatic processing of a carrier tape, the carbon black to the quality of the material used scours, or it is performed by coating, and that with which are satisfied of the effectiveness was obtained. However, measures still sufficient about electrostatic processing of a covering tape are not taken, but coating of the antistatic agent to the outer layer of a covering tape or a conductive ingredient etc. is performed in the present condition. However, the treatment effect was not enough as protection of the electronic parts enclosed because of processing of a covering tape outside, and the effectiveness did not exist to static electricity especially generated by contact of a covering tape inside front face and electronic parts. Moreover, although it is possible to carry out by the scour lump by coating or the glue line of an antistatic agent about the electrostatic processing to a covering tape inside front face, i.e., a glue line The antistatic agent scoured to a glue line the bleeding to a covering tape inside front face In this case, a lifting, sufficient effectiveness -- the dependency over the temperature and humidity of the environment where seal nature becomes unstable, and the troubles of a poor seal occur frequently, an electrostatic effect also falls with time, or a package object is used, especially humidity is strong, and an electrostatic effect falls remarkably under low humidity called 10%RH -- profit -- \*\*\*\*\* -- it cut. Moreover, about coating, it is stabilized on a carrier tape, selection of the binder which can be pasted up is difficult, and since an original glue line is covered, PIRUOFU reinforcement falls remarkably. Moreover, since an electrostatic effect also fell much more with time than the time of a scour lump, it was not carried

out.

[0003]

[Problem(s) to be Solved by the Invention] The measures against static electricity of a glue line are taken, and this invention offers the seal condition dependency of PIRUOFU reinforcement, and the covering tape for a chip mold electronic-parts package by which aging is small and seal nature was stabilized.

[0004]

[Means for Solving the Problem] The result which this invention could solve the above problems and was studied wholeheartedly, A polyethylene film is used as an outer layer as the middle class between biaxial-stretching polyester film, an outer layer, and a glue line. Ethylene vinyl acetate system resin is coated with the thing which made homogeneity distribute the amount polyethylene of giant molecules as a glue line. Knowledge that the complex film which coated the front face with the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component is transparent and it can become a covering tape with a good property is acquired, and it comes to complete this invention. This invention is the covering tape which can carry out the heat seal of the pocket which contains chip mold electronic parts to the carrier tape made from plastics formed continuously. Namely, this covering tape An outer layer is biaxial-stretching polyester film, and the middle class between an outer layer and a glue line is a polyethylene film. A glue line It is the covering tape for a chip mold electronic-parts package characterized by making ethylene vinyl acetate system resin distribute the amount polyethylene of giant molecules to homogeneity, carrying out coating of the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component on the front face, and changing. The addition of the cationic surface active agent with which the desirable mode of this invention uses chlorination trimethyl alkylammonium as a principal component is the covering tape for a chip mold electronic-parts package characterized by be 0.001 - 10 weight section, for the adhesive strength of the glue line of this covering tape and the sealing surface of this carrier tape be 10-120gr per seal width of face of 1mm, and the visible-ray transmission of this covering tape be 75% or more to the ethylene vinyl acetate system resin 100 weight section of a glue line.

[0005]

[Function] When drawing 1 explains the component of the covering tape 1 of this invention, an outer layer 2 is biaxial-stretching polyester film, and it is a rigid high film in the transparency whose thickness is 6-100micro. In 6micro or less, if rigidity is lost and 100micro is exceeded, it will be too hard and a seal will become unstable. The middle class 4 is a polyethylene film. A glue line 5 makes the ethylene vinyl acetate system resin which has transparency distribute with molecular weight 1 million-6 million and a particle diameter [ 0.5-200micro ] polyethylene to homogeneity, and what has the property which can carry out a heat seal to the carrier tape 6 made from plastics of partner material is selected. And coating of the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component on a glue line front face is carried out to homogeneity, below at least 1013ohms / \*\* are required for the surface-electrical-resistance value of a glue line in that case, and it is 106 still more preferably. The range of  $\omega$  / \*\* - 1010ohms / \*\* is good. If it becomes larger than 1013ohms / \*\*, an electrostatic effect will get extremely bad and the target engine performance will not be obtained. Moreover, the addition is 0.001 - 10 weight section to the ethylene vinyl acetate system resin 100 weight section of a glue line by the above-mentioned surface-electrical-resistance property, and its 0.01 to 5 section is still more preferably good. If fewer than the 0.001 weight section, an electrostatic effect will not be discovered, and if [ than 10 weight sections ] more, PIRUOFU reinforcement becomes remarkably weak and it is not suitable for practical use. Moreover, since the surface-electrical-resistance value of a glue line is adjusted to below 1013ohms / \*\*, even if electronic parts contact this covering tape 1 on the way of [ conveyance ] which enclosed electronic parts with this carrier tape 6 on this covering tape 1, or in case this covering tape 1 is exfoliated and electronic parts are taken up, it does not generate but static electricity can protect electronic parts from the static electricity failure. In addition, in order to raise an electrostatic effect further, an antistatic treatment layer or a conductive layer may be prepared in an outer layer side, i.e., the front rear face of biaxial-stretching polyester film. Moreover, about the formation approach of heat-sealing mold adhesives, the extrusion laminating method is cheap, and it is desirable even if it sees from a health side. Moreover, 10-80micro are desirable still more desirable, and the thickness of a glue line has.20-good 50micro. In 10micro or less, film production is difficult thickness on the property of a lamination machine, in 80micro or more, the diameter of a volume at the time of a long volume becomes large, and difficulty is in storage of a film. In addition, both may be laminated through the glue line of heat-curing molds, such as an isocyanate system and an imine system, in order to raise the lamination reinforcement of an outer layer and an interlayer. In

this case, the ethylene vinyl acetate system resin of a glue line is selected so that the adhesive strength of this covering tape 1 and this carrier tape 6 may become ten to 70 gr still more preferably ten to 120 gr per seal width of face of 1mm. When PIRUOFU reinforcement is lower than 10gr(s), at the time of package object migration, a covering tape separates and there is a problem that the electronic parts which are contents are omitted. On the contrary, if higher than 120gr, in case a covering tape is exfoliated, a carrier tape will vibrate, and the phenomenon which jumps out of a receipt pocket just before electronic-parts wearing is carried out, i.e., a jumping trouble, will be caused. According to this invention, the dependency of seal conditions is low, and aging of the PIRUOFU reinforcement by storage environment and a surface-electrical-resistance value can obtain the engine performance made into few purposes.

[0006] moreover, since an opening is made between a glue line and an outer layer at the time of rolling up at the same time it carries out covering tape volume appearance and prevents the blocking at the time, since the amount polyethylene of giant molecules is distributing to the glue line, the imprint to the outer layer of the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component is prevented, and aging of a surface-electrical-resistance value is stopped. 10-20 are desirable still more desirable, and, as for the carbon number of the alkyl group of the cationic surface active agent which uses chlorination trimethyl alkylammonium as a principal component, 12-16 are good. PIRUOFU reinforcement will become weak, if concentration is adjusted so that a surface-electrical-resistance value may become below 1013ohms / \*\* since it is difficult to acquire a surface-electrical-resistance value by thin concentration, if it is 10 or less and 20 or more. Since the surface-electrical-resistance value in a very thin mode with the effective concentration of this \*\* is acquired, the effect of this \*\* originally said to worsen heat-sealing nature can be suppressed as much as possible. 0.5-200micro are desirable still more desirable, and the particle size of the amount polyethylene of giant molecules has 10-good 100micro. By 0.5micro or less, the blocking prevention effectiveness and the depressor effect of aging of a surface-electrical-resistance value are not acquired for particle size, but it becomes large with [ of PIRUOFU reinforcement ] a rose in 200micro or more. To ethylene vinyl acetate system resin, 0.01 - 50 weight section is desirable still more desirable, and 0.01 - 5 weight section of an addition is good. The blocking prevention effectiveness and the depressor effect of aging of a surface-electrical-resistance value are not acquired for an addition below in the 0.01 weight section, but the transparency of a film gets worse remarkably above 50 weight sections. As for molecular weight, 1 million-6 million are desirable, and 3 million-5,500,000 are still more preferably good. Molecular weight fuses or less by 1 million at the time of an extrusion lamination, and the blocking prevention effectiveness and the depressor effect of aging of a surface-electrical-resistance value are no longer acquired, and it is hard to fuse polyethylene or more by 6 million in the case of purging of a lamination machine, and a fence about a man day to exchange of resin. Moreover, since it is constituted so that the visible-ray permeability of a covering tape may become 80% or more preferably 75% or more, the electronic parts of the interior enclosed with the carrier tape can check with viewing or a machine. When lower than 10%, the check of inner electronic parts is difficult.

[0007]

[Example] Although the example of this invention is shown below, this invention is not limited at all by these examples.

The <<examples 1, 2, 3, and 4 and 5>> The examples 1, 2, 3, and 4 of <<comparison, 5>>

To ethylene vinyl acetate system resin by extrusion lamination at the biaxial-stretching polyester film and polyethylene film [ of 15micro of thickness / of the lamination article of a polyethylene film ] side of 25micro of thickness Molecular weight 5 million, The glue line which consists of a thing which made homogeneity distribute the polyethylene 1 weight section with a particle diameter of 100micro is produced to 15micro of thickness. Furthermore, the covering tape of lamination shown in drawing 1 which coated the biaxial-stretching polyester film side and the glue line side with the cationic surface active agent (the Kao Corp. make, surface active agent) which uses chlorination trimethyl dodecyl ammonium as a principal component was obtained. The obtained covering tape was heat sealed after the slit to 13.4mm width of face with the carrier tape made from PS of 16mm width of face, and PIRUOFU reinforcement was measured. Moreover, measurement of the surface-electrical-resistance value by the side of a glue line was performed based on JIS-K -6911, and the characterization result was shown in Table 1.

\* The glue line of the example of a comparison is resin instead of ethylene vinyl acetate system resin.

\* The figure of a surface active agent is an addition to the ethylene vinyl acetate system resin 100 weight section of a glue line.

\* heat-sealing condition: -- 140-180 degrees C / 20psi / 1sec. Shilu width of face 0.4mmx2\* Peel conditions : 180-degree Peel , Peel speed 300mm/min. -- n= 3 [0008]

[Table 1]

	実施例 1	実施例 2	実施例 3	実施例 4	実施例 5
界面活性剤	0.002	0.01	0.5	1	5
ピールオフ強度 (g / 1mm巾)					
初期値	40	40	40	40	40
40°C-90%, 30DAYS	45	50	52	44	43
60°C、30DAYS	50	48	50	48	40
接着層表面抵抗 (Ω / □)					
初期値	10 <sup>10</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>7</sup>	10 <sup>7</sup>
40°C-90%, 30DAYS	10 <sup>11</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>7</sup>
60°C、30DAYS	10 <sup>10</sup>	10 <sup>9</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>8</sup>

[0009]

[Table 2]

	比較例 1	比較例 2	比較例 3	比較例 4	比較例 5
接着層	EMMA	E E A	EMAA	7イノマー	E A A
糸エッチの有無	有	無	無	無	有
界面活性剤	0.0005	0.01	0.5	1	15
ピールオフ強度 (g / 1mm巾)					
初期値	40	40	40	2	5
40°C-90%, 30DAYS	60	56	56	0	0
60°C、30DAYS	85	60	55	0	0
接着層表面抵抗 (Ω / □)					
初期値	10 <sup>13</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>7</sup>	10 <sup>7</sup>
40°C-90%, 30DAYS	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上
60°C、30DAYS	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上	10 <sup>13</sup> 以上

[0010]

[Effect of the Invention] If this invention is followed, electrostatic processing of the glue line will be carried out. Contact on electronic parts and a covering tape Or static electricity generated at the time of exfoliation of a covering tape is stopped. By two of the point that the electrostatic effect is stable also to an operating environment or aging, and does not affect seal nature, either, and the point that PIRUOFU reinforcement can be set as arbitration in the range of 10-120gr per mm Contact on the electronic parts and the covering tape which are the conventional trouble Or the problem of static electricity generated at the time of exfoliation of a covering tape, the problem that the dependency over the seal conditions of PIRUOFU reinforcement is large, and the problem that changes with storage environment with time can be solved, and the stable PIRUOFU reinforcement can be obtained.

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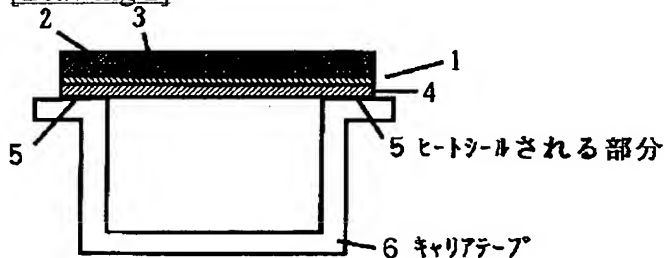
DRAWINGS

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[Drawing 1]



[Drawing 2]



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[Translation done.]